May 21*st*.

Vice President BRIDGES, in the Chair.

Thirty-four members present.

Papers were presented for publication, entitled:

"Descriptions of Forty-nine New Species of the Genus Malania," by Isaac Lea.

"Synopsis of the Uranoscopoids," by Theo. Gill.

May 28*th*.

Mr. LEA, President, in the Chair.

Twenty-eight members present.

On report of the respective committees, the following papers were ordered to be published in the Proceedings:

On the HAPLOIDONOTINÆ.

BY THEODORE GILL.

There are found in the larger fresh water rivers and lakes of North America, west of the Rocky Mountains, and in the sea and inlets along its eastern and gulf coast, fishes which have the closest external resemblance to the typical Sciænoids, and especially to the *Corvinæ*. Yet those fishes whose external characters are scarcely sufficient to even justify generic separation from the *Corvinæ* are distinguished by a structure of the lower pharyngeal bones, which is entirely different from that exhibited by the corresponding boues of the Sciæninæ. The differeuce existing between them is of such character that the learned Johannes Müller considered himself justified in assigning to them an ordinal value, and his views have been since adopted by almost all of the most learned ichthyologists. In the Sciæninæ, the lower pharyngeal bones are always and as decidedly distinct from each other as in any of the Acanthopteri of Müller. In the fishes now under discussion, the corresponding bones of the adult are firmly and immovably united in the same mauner as those of the Pharyngognathi. The study of them is therefore of the greatest interest and importance, for we have thus the simple question of the value of the comparative characters of one part of the organizatiou, relieved of all secondary considerations, to decide upon. There are no other differences of structure to accompany this one supposed fundamental character.

There had been previously knowu many forms, which had respectively the acauthopteran and pharyngognathan pharyngeal boues, which mutually resemble each other. Such are the Centrarchinæ and the Chromoids. The members of these two groups have a very strong resemblauce to each other. This is equally exhibited in form, in the armature of the fins, in color and in habits. But it is found that while the first fishes have always teeth, at least on the vomer, six branchiostegal rays and an entire lateral line, the Chromoids have the palatine arch entirely edentulous, only five branchiostegal rays, and the lateral line always interrupted; it may perhaps be also added that the fishes of the last family have the intermaxillary bones with longer ascending processes, and consequently capable of greater protrusion than those of the

[May,

first. It may consequently be argued that the resemblance is one of analogy rather than of actual affinity, but with the fishes now under consideration, such can scarcely be argued. It can not be truly said that the real affinities are veiled under analogical resemblances, where all of the organization save one part is similar. For with the exception of the pharyngeal bones, there is no difference of at most more than generic importance between some of the genera of Sciæninæ and those of Haploidonotinæ. The form is similar; the characteristic peculiarities of the skeleton, the intestinal canal and the rest of the viscera, the squamation, the structure of the fins, the peculiar incisions of the margin of the snout between the preorbital bones, the pores of the lower jaw, the number of branchiostegal rays, the dentition, and all other features, are reproduced in the respective genera. Such being the case, we cannot hesitate to believe that the likeness between the Haploidonotinæ and the Sciæninæ is truly indicative of affinity, and we are then naturally led to the conclusion that Müller's Pharyngognathi are not entitled to ordinal distinction, although admitting that the *Acanthopteran Pharyngognathi*, known to that illustrious biologist, are natural associates.

The subfamily of Haploidonotinæ, so far as is yet known, is entirely confined to North America. Only two genera are known, one characterized by the presence of small filaments beneath the chin and lower jaw, is represented by two species found along the Atlantic coast of North America. They are the *Pogonias fasciatus* Lac., and *Pogonias chromis* Cuv. The second has no filaments, and its species are fluviatile and lacustrine; the name of *Aplodinotus* was first conferred on it by Rafinesque.

As the name of *Aplodinotus*, or according to its etymology, *Haploidonotus*, is here for the first time restored, it seems advisable to review the reasons which have induced us to adopt this in face of the assertion made by Rafinesque in the Ichthyologia Ohiensis. Rafinesque has there* characterized a genus which he has called *Amblodon*, and has remarked that it was called by him "*Aplodinotus* G. 8, of my Memoir on 70 New Genera of American animals, in the Journal History of Paris, having been led into error, in supposing that the remarkable teeth of its throat belonged to the Buffalo-fish, as will be seen below." Under the specific description, he gives† a very good account of the pharyngeal dentition, and adds that "these teeth and their bones are common in many museums, where they are erroneously called teeth of the Buffalo-fish. or of a cat-fish. I was deceived so far by this mistake, and by the repeated assertions of several persons, as to ascribe those teeth to the Buffalo-fish, which I have since found to be a real *catastomus;* this error I now correct with pleasure."

Rafinesque, with accustomed carelessness, has reversed the proposition. It was under the name of *Amblodon* that he formerly described the lower pharyngeal bones of the Sciænoid, assigning them to two catastomoids. Under the name of *Aplodinotus*, he indicated as correctly as was customary with him the external features of the genus of Sciænoids. As the Journal in which his descriptions were published, is almost inaccessible in America. the following abstract is offered, the series being in the Library of the Smithsonian Institution:

8. Aplodinotus (Thoracique). Corps oblong comprimé. Tête et opercules écailleux, préopercules dentelés, second opercule membraneux inerme, membranes branchiales à 6 rayons. Lèvres extensibles à petites dents en râpe. Deux nageoires dorsales confluentes, la première à rayons épineux, la seconde sans rayons épineux, écaillense longitudinalement à sa base. Nageoires

*Ichthyologia Ohiensis, p. 24.

†Ichthyologia Ohiensis, p. 25.

thoraciques sans appendices, à 7 rayons dont 1 épineux, anus posterieur. Le type de ce genre est un beau et excellent poisson de l'Ohio, *A. grunniens*, qui pèse quelque fois jusqu' à 30 liv., et que l'on y nomme *Ohio Perch*, ou *Grunting Perch* (Perche grognante,) parce qu'il produit souvent un grognement particulier. Entierement argenté, a renflets dorés, ligne laterale courbe posterieurement, queue lunulee, 1 rayon dorsal et anal extrêmement court, 2 rayons des $\frac{2}{7}$ thoraciques mucronés. D. 9, 35. A.—. P. 18. C. 20. Ce genre est voisin du genre *Sciæna*, les opercules et nageoires écailleux l'en distinguent.

16. Amblodon (Abdominal). Différent du genre *Catastomus*. Machoire inférieure pavée de dents osseuses serrées, arrondies, à couronne plate, inégales. Les poissons de ce genre, qui abondent dans l'Ohio, le Missouri et le Mississipi, sont distingués par le nom vulgaire de *Buffalo-fish* (Poisson buffle,) et les Français de la Louisiane les nomment *Piconeau*. Il y en plusieurs espèces qui parviennent souvent à une tres grosse taille. Les deux suivans habitent dans l'Ohio. 1. *A. bubalus*, Brunchiâtre, pale dessous, Joues blanchâtres, D. 28, A. 12, P. 16, A. 19, C. 24. L' *A. niger* est entièrement noir; tous deux ont la ligne latérale droite, queue bilobée, tête tronquée, etc. Ils sont tres-bons à manger.

After a perusal of the above descriptions, there can be no doubt that if they alone are consulted, the name of *Aplodinotus* must be retained. But it is with much reluctance that that name is adopted, and only in obedience to the inexorable law of priority. The name of *Amblodon* is most appropriate and correctly formed, while *Aplodinotus* is both vague and erroneously compounded. It is not quite certain how the name is derived. Agassiz, in his "Nomina Systematica Generum Piscium" derives it from ἁπλόος simple, and νωτος back; a far more probable derivation is from ἁπλοίς, ίδος, a simple cloak to fit the body, and νωτος, the back, in allusion to the scaly coating of the base of the second dorsal fin, which Rafinesque considered as the character which chiefly distinguished the genus from *Sciæna*. Had he derived it as Agassiz suggests, he would have undoubtedly written *Aplonotus*. Accepting the above as the true etymology, the orthography of *Haploidonotus* is adopted as more correct.

It is advisable to state that there are three errors in Rafinesque's short diagnosis of "*Aplodinotus*" which need to be corrected. There are seven instead of six branchiostegal rays; there is a spine in front of the second dorsal fin, as was afterwards mentioned in the description of *Amblodon* in the Ichthyologia Ohiensis; there is the normal number of ventral rays, and not one spine, and six soft rays. The last error is almost excusable in such an observer as Rafinesque, for the external branch of the first ray is much developed, and resembles somewhat the large simple ray of a pectoral or caudal fin.

Adopting the name of *Haploidonotus* for the genus, it is taken as the type of the subfamily, whose characters, as well as those of its two genera, are now given.

Subfamily Haploidonotinæ Gill.

The body is oblong and suboval, highest at the front of the spinous dorsal fin; the ante-dorsal region convex.

The head is oblong, with the occipito-nasal profile very oblique, and the snout high and more or less convex. The upper jaw is longer than the lower. The supramaxillary bones are mostly retractile under the suborbitars, and cease before the vertical of the end of the orbit. The margin of the snout between the preorbital bones has four small oblique incisions. There are five pores beneath the chin.

The first dorsal fin is longer than high, and commences nearly over the bases of the pectorals; it is connected with the second by a very low membrane.

The anal fin is trapezoidal, higher than long, and under or behind the median rays of the second dorsal.

The pectoral fins are pointed. The ventral are inserted almost beneath the bases of the pectoral.

The scales on the body and crown have pectiniform borders; those on the cheeks and opercula are mostly cycloid.

The lateral line is continued to the end of the caudal fin.

The inferior pharyngeal bones are triangular, with their basal or posterior margin widest, and provided with a shallow, braced-formed (⌒) emargination, the posterior processes being short and robust. There is a much thickened triangular area beneath and behind, the apex of which is continued into a median or sutural carina or elevation, whence the bones decrease in thickness to the margin. From the base of each ascending side of the thickened triangular area, a strong compressed process proceeds downwards and outwards, and is nearly at a right angle to an inferior ridge, which terminates at the end of the compressed posterior process of the bone.

There are three upper pharyngeal bones on each side; the median is broad and of a curvilinear, triangular or subcircular form; the anterior and posterior narrow.

Most of the teeth of the inferior and upper pharyngeal bones of the adult are molar, short, and with truncated or slightly excavated crowns. Only those of the external margins are sometimes cylindro-conic.

The setœse laminæ of the ceratohyals of the first pair of branchial arches are very short and compressed; their internal margins are provided with small acute teeth. The dentiferous lamellæ of the remaining branchial arches are small and ridge-like, distant and armed with small recurved acute teeth.

Pseudobranchiæ are present.

The pharyngeal bones of the young are separated, but in the adult they become immoveably united, like those of the Pharyngognathi of Müller. The teeth of the young also incline toward an obtusely cylindro-conic form, but with advancing age, they become more and more robust and truncated, and in the old, almost the entire surfaces of the lower and median upper pharyngeals are paved with short truncated molars. The teeth of the external margins of the median upper pharyngeals generally retain the form which the teeth of the young possessed.

Genus Haploidonotus (Raf.)

Aplodinotus *Raf.*, Journal de Physique, de Chemie, et d'Histoire Naturelle, vol. lxxxviii. p. 418. June, 1819.

Amblodon *Raf.*, Journal de Physique, de Chemie, et d'Histoire Naturelle, vol. lxxxviii. p. 421. June, 1819.

Lower pharyngeal bones described and erroneously attributed to Catastomoids:

Amblodon *Raf.*, Ichthyologia Ohiensis, p. 24.

Corvina sp., *Cuvier*, *Richardson*, *Kirtland*, *DeKay*, *Storer*, *Günther*, etc.

Amblodon *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

" sp. *Girard*, Report of Explorations and Surveys for Pacific Railroad route, vol. x. *Fishes*, p. 95.

Body rather elongated or oblong; the subdorsal outline declines backwards with scarcely a curve.

Head oblong; dorso-nasal profile declining with a slight sigmoidal curve; snout high and truncated. Eyes mostly anterior. Preoperculum minutely crenulated. Chin covered with simple skin.

Teeth on a villiform band in each jaw; that of the upper preceded by a row of slightly larger ones.

Anterior dorsal fin with nine or ten spines. Anal with two spines, the second of which is large. Caudal lanceolated.

The pharyngeal bones as well as the armature of the branchial arches have been described as characteristic of the subfamily. There is no essential difference between those of the two genera of the group.

Type Haploidonotus grunniens (*Raf.*)

Syn. Aplodinotus grunniens *Raf.*, Journal de Physique, vol. lxxxviii.
Amblodon grunniens *Raf.*
Sciæna oscula *Les.*
Sciæna grisea *Les.*
Corvina oscula *Cuv. et Val.*
Corvina grisea *DeKay.*

Genus Pogonias Lacépède.

Labrus sp. *Linn.*
Pogonias *Lacépède*, Hist. Nat., vol. iii. p. 137.
Pogonathe sp. *Lacépède*, Hist. Nat., vol. v. p. 121.
Sciæna sp. *Lacépède*, *Mitchell.*
Labrus sp. *Mitchell.*
Pogonias *Cuvier*, Regne Animal, ed. i. vol. ii. p. 298.
Pogonathus *Bon.*

Body oblong; subdorsal outline little decurved backwards.

Head oblong; dorso-nasal profile nearly regularly curved, or the sigmoidal flexure obsolete. Snout high. Eyes anterior. Preoperculum entire. Chin furnished with many filaments, and each ramus of the lower furnished internally for most of its length with a row of distant ones.

Teeth in a villiform band in each jaw.

Anterior dorsal fin with ten spines. Anal with two; the second large and stout. Caudal subtruncated.

This genus is very closely related to *Haploidonotus*, the only essential differential characters being the beard filaments of the chin and lower jaw, and perhaps the form of the caudal fin.

Type Pogonias fasciatus *Lacépède.*

An additional representative of the subfamily of Haploidonotinæ may perhaps be found in the *Chilotrema fasciatum* of Tschudi.* That species has a greater superficial resemblance to the *Pogonias fasciatus* than any other fish, but bearing in mind the close resemblance of *Haploidonotus* to *Corvina*, we do not even dare to positively assert that it belongs to the same subfamily.

The following list will exhibit the number of species of the subfamily of Haploidonotinæ of the United States. As has been already remarked, the genus *Pogonias*, containing bearded species, with truncated caudal fins, are marine, and found on the Atlantic coast, while the *Haploidonoti*, without beards, and with lanceolated caudal fins, are found only in the larger fresh water rivers and lakes.

Genus Haploidonotus (Raf.)

Haploidonotus grunniens *Raf.*
Aplodinotus grunniens *Raf.*, Journal de Physique, &c., vol. lxxxviii, p. 418.
Haploidonotus concinnus *Gill.*
Amblodon concinnus *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

* *Tschudi* Fauna Peruana. Ichthyologia, p. 13, tab. 1.

Haploidonotus lineatus *Gill.*

Amblodon lineatus *Agassiz*, American Journal of Science and Art, ser. ii. vol. xvii. p. 307.

Haploidonotus neglectus *Gill.*

Amblodon neglectus *Girard*, United States and Mexican Boundary Survey. *Ichthyology*, p. 12, pl. v. figs 6–10.

Haploidonotus Richardsonii *Gill.*

Corvina Richardsonii *Cuv. et Val.*, Hist. Nat. des Poissons, vol. v. p. 100.

The last species will be found to be the representative of a distinct genus, but with our present knowledge, it is unadvisable to characterize it. Cuvier and Valenciennes, in the Histoire Naturelle des Poissons, as well as Richardson in the Fauna Boreali-Americana, have attributed to it seven branchiostegal rays. In the article "Ichthyology," of the last edition of the Encyclopædia Britannica, (p. 284,) Sir John Richardson has remarked of the species as follows: "We have, however, some suspicion of its belonging more properly to the Theraponidæ than to the Sciænidæ, notwithstanding Cuvier's weighty authority. It has only six branchiostegals." The former description is probably correct. The species certainly is not allied to the Theraponidæ. It differs principally from the true *Haploidonoti* by the form of its head, and of the caudal fin.

The *Amblodon saturnus* of Girard belongs to the subfamily of Sciæninæ, and to the genus *Rhinoscion* Gill.

Of the marine genus, there are two species.

Genus Pogonias Lac.

Pogonias fasciatus *Lac.*

Pogonias chromis *Cuv.*

On the Genus ANISOTREMUS Gill.

BY THEODORE GILL.

In the "Catalogue of the Fishes of the Eastern Coast of North America," the *Pristipoma rodo* of Cuvier, which is a doubtful or accidental visitor to the southern coast of the United States, has been taken as the type of a distinct genus on which the name of *Anisotremus* has been conferred. The characters of the genus are now given, with descriptions of the type and a newly discovered species from the western coast of Central America.

Anisotremus Gill.

Anisotremus *Gill*, Catalogue of the Fishes of the Eastern Coast of North America, p. 32.
Sparus sp. *Linn.* et al.
Perca sp. *Bloch.*
Grammistes sp. *Bloch, Schneid.*
Lutjanus sp. *Lacépède.*
Pristipoma sp. *Cuv., auct.*

Body rhomboo-ovate and much compressed, highest at the anterior part of the first dorsal fin, and thence declining toward the end of the second, gradually under the first, more rapidly under the second. Ante-dorsal region very convex, and profile thence declining very rapidly to the snout.

Head laterally of a rhomboid form, higher than long, with the profile very oblique and nearly parallel with the obliquely descending border of the operculum. Preoperculum behind nearly vertical and finely serrated. Two pores in front of the lower jaw, and a central groove behind.